The Bank of East Asia, Limited
東亞銀行有限公司

Pillar 3 Regulatory Disclosures

For the period ended
31 December 2017

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The Bank of East Asia, Limited
東亞銀行有限公司

REGULATORY DISCLOSURES

The following Pillar 3 disclosures are prepared on a consolidated basis of calculating the capital adequacy ratios.

Table OVA: Overview of risk management

The Group has established an effective risk governance and management framework in line with the requirements set out by the HKMA and other regulators. This framework is built around a structure that enables the Board and Senior Management to discharge their risk management-related responsibilities with appropriate delegation and checks and balances. These responsibilities include defining risk appetite in accordance with the Group's business strategies and objectives, formulating risk policies that govern the execution of those strategies, and establishing procedures and limits for the approval, control, monitoring, and remedy of risks.

The Risk Committee stands at the highest level of the Group's risk governance structure below the Board. The Risk Committee provides direct oversight over the formulation of the Group's institutional risk appetite, and sets the levels of risk that the Group is willing to undertake with regard to its financial capacity, strategic direction, prevailing market conditions, and regulatory requirements.

The Group faces a variety of risks that could affect its franchise, operations, and financial conditions. To identify and manage the potential risks in a holistic and effective manner, the Group adopts an enterprise risk management framework under which the components of the Group's business model, such as activities conducted, portfolio mix, geographical footprint, and target customer, are considered in ascertaining its overall risk profile.

Under BEA's ERM framework, the principal risks include credit risk, interest rate risk, market risk, liquidity risk, operational risk, reputation risk, strategic risk, legal risk, compliance risk, technology risk, business continuity risk, and new product and business risk.

The Group reviews the risk profile through regular assessments of both qualitative and quantitative risk factors to determine its tolerance of prevailing risk levels against the applicable risk appetites annually approved by the Board.

The Risk Committee also ensures that the Group's risk appetite is reflected in the policies and procedures that Senior Management and relevant Division Heads adopt to execute its business functions. Through the Management Committees including the Crisis Management Committee, Risk Management Committee, Credit Committee, Asset and Liability Management Committee, and Operational Risk Management Committee, at the executive level – and with overall coordination by the Risk Management Division – the Risk Committee regularly reviews the Group's risk management framework and ensures that all important risk-related tasks are performed according to established policies with appropriate resources.

BEA has adopted a "Three Lines of Defence" risk management structure to ensure that roles within the organisation are clearly defined in regard to risk management.

The first line of defence comprise the heads of division / department at BEA's Head Office and the heads of BEA's significant subsidiaries, who are responsible for the management of the risks that their unit incur in the course of activities. These risk owners are required to set up a specific control mechanism, establish detailed procedures, and carry out ongoing risk control for their unit according to the Group's risk management framework and policy.

The second line of defence is formed by risk controllers comprising designated division / department heads of functional units, who are responsible for providing independent oversight over the risk owners. Risk Management Division coordinates with risk controllers to establish bank-wide framework, policy and control mechanism, review risk issues identified by the risk takers, and report the significant risk issues to the Risk Committee and the Board.

Reporting directly to the Audit Committee, the Bank's Internal Audit Division serves as the third line of defence. The Internal Audit Division assists the Audit Committee in its oversight of the Bank's overall risk management and internal control systems by conducting periodic reviews to assess the adequacy of the Bank's risk management framework, control, and governance processes as designed by the first and second lines of defence.

The Group is committed to fostering strong risk culture embedded with risk ownership, accountability and awareness of all staff. Such environment for risk management is cultivated by both "top-down" and "bottom-up" channels.

"Top-down" channel is reflected in the Board's approval of the Risk Appetite Statement to define the risk tolerance for the Group, so that risk policies and limits can be designed specifically and accordingly. These policies and limits are accessible by all staff on internal electronic platform. Significant updates are communicated to staff by way of regular electronic bulletin.

Table OVA: Overview of risk management (continued)

"Bottom-up" channel is reinforced by staff's awareness of adherence to risk policies and limits, avoidance of excessive risk-taking, and regular information reporting on different risk areas to the Management Committees, the Risk Committee and the Board.

To provide the Board and Senior Management with a clear view of the Group's exposures to different risk types, information on both quantifiable and non-quantifiable risks is reported to the Management Committees, the Risk Committee and the Board at pre-determined schedule for review and discussion. The Group's enterprise risk management framework helps define the scope of risk information, such that those of asset quality, liquidity, profitability, portfolio mix, capital adequacy etc. on Group level and functional unit level are relevant. The information is analysed with regard to factors such as the Group's risk profile, risk management strategies and market statistics.

The Group maintains risk management systems to measure and monitor exposures, identify areas of high risk, and ensure that the magnitude of risk is within the tolerance level. In particular, the credit, market and operational risk management systems are also used for assessing the capital adequacy. Their features are as follows:

(a) Credit risk measurement system

The Group has established policies, procedures, and rating systems to identify, measure, monitor, control, and report on credit risk. In this connection, guidelines for management of credit risk have been laid down in the Group's Credit Risk Management Manual. These guidelines stipulate delegated lending authorities, credit underwriting criteria, a credit monitoring process, an internal rating structure, credit recovery procedures and a provisioning policy. They are reviewed and enhanced on an ongoing basis to cater for market changes, statutory requirements, and best practices in risk management processes.

The Group's credit risk management for the major types of credit risk is depicted as follows:

(i) Corporate and bank credit risk

The Group has laid down policies and procedures to evaluate the potential credit risk of a particular counterparty or transaction and to approve the transaction. For corporate and bank customers, the Group has different internal rating systems that are applied to each counterparty. For exposure classified as Specialised Lending in particular, supervisory slotting criteria are used. To monitor concentration risk, the Group has preset limits for exposures to individual industries and for borrowers and groups of borrowers. The Group also has a review process to ensure that the level of review and approval is proper and will depend on the size of the facility and rating of the credit.

The Group undertakes on-going credit analysis and monitoring at several levels. The policies are designed to promote early detection of counterparty, industry or product exposures that require special monitoring. The overall portfolio risk as well as individual impaired loans and potential impaired loans are monitored on a regular basis.

(ii) Retail credit risk

The Group's retail credit policy and approval process are designed for the fact that there are high volumes of relatively homogeneous and small value transactions in each retail loan category. The design of internal rating system and formulation of credit policies are primarily based on the demographic factors and the loss experience of the loan portfolios. The Group monitors its own and industry experience to determine and periodically revise product terms and desired customer profiles.

(iii) Credit for treasury transactions

The credit risk of the Group's treasury transactions is managed in the same way as the Group manages its corporate and bank lending risk. The Group applies an internal rating system to its counterparties and sets individual counterparty limits.

(iv) Credit–related commitment

The risks involved in credit-related commitments and contingencies are essentially the same as the credit risk involved in extending loan facilities to customers. These transactions are subject to the same credit application, portfolio maintenance and collateral requirements as for customers applying for loans.

Table OVA: Overview of risk management (continued)

(b) Market risk measurement system

The Group has formulated market risk management policy to identify, measure, monitor, control, and report on the market risk, where appropriate, to allocate adequate capital to cover those risks. The market risk management policy and control limits are approved by the Board and are monitored and regularly reviewed to align with market changes, statutory requirements, and best practices in risk management processes.

For measuring and monitoring of market risk, market risk analysis is conducted on different dimensions, such as by risk factors, by regions, by currencies in the form of potential loss and impact to capital adequacy. Risk limits and management action triggers are set with reference to the nature, volume of transaction and risk appetite of the Bank. Multiple systems are employed to facilitate the calculation, measurement and analysis of market risk.

Hedging and risk mitigation are performed corresponding to the market risk exposures. Various strategies, including the use of traditional market instruments, such as interest rate swaps, or dynamic hedging are adopted by the Bank according to the complexity of the corresponding portfolio.

The effectiveness of the hedging results would be independently monitored by various risk management functions.

(c) Operational risk measurement system

Under the existing risk management framework, operational risk is monitored on a Bank Group basis. All operational incidents are captured in a centralised database. MIS reports with analysis of operational losses by event types, comparatives figures of current and prior period, etc. are presented to Operational Risk Management Committee on a regular basis. Amongst others, frequency and severity of operational risk incidents are key measurement to assess the operational risk profile of the Bank Group.

A centralised operational risk management function, under the Risk Management Division, is responsible for coordinating the establishment / development of standard tools to identify, assess, monitor and report the operational risk inherent in the material products, activities, processes and systems of the Bank Group. A documented set of process / procedures for control and mitigation of operational risk is in place to keep pace with the growth / changes in business activities (e.g. new products / markets, business expansion) and infrastructure of the Bank Group. For identified operational risk, appropriate measures will be taken to determine if the Bank Group should accept the risk, control / mitigate the risk, transfer the risk (such as taking out of insurance policies) or avoid the risk (by withdrawing completely from the business activity).

Stress testing is an integral part of the Group's risk management. The Group regularly performs stress-tests on the principal risks, where appropriate, covering the Group's major portfolios such as lending and investments. Various stress testing methodologies and techniques including sensitivity tests, scenario analyses and reverse stress testing are adopted to assess the potential impact of stressed business conditions (including historical situations such as Financial Tsunami 2008 and hypothetical situations such as a significant economic downturn in Mainland China and Hong Kong) on the Group's financial positions, in particular, capital adequacy, profitability, and liquidity. Whenever necessary, a prompt management response will be developed and executed to mitigate potential impacts.

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Template OV1: Overview of RWA

The Group follows internal models method under market-based approach to calculate RWA for the Group's banking book listed equities holding. The Group estimates VaR by the historical simulation approach, where the VaR is derived from revaluating the portfolio for each of the historical scenarios from the market movements obtained from the historical observation period. This methodology uses historical movements in market rates and prices relative to risk-free rate, a 99% confidence level, a one-quarter holding period, and a three-year historical observation period.

The following table provides an overview of capital requirements in terms of a detailed breakdown of RWAs for various risks as at 31st December 2017 and 30th September 2017 respectively:

		(a)	(b)	(c)
		RWA		Minimum capital requirements
(HK$ million)		December 2017	September 2017	December 2017
1	**Credit risk for non-securitization exposures**	**434,497**	**435,578**	**36,693**
2	Of which STC approach	31,789	34,592	2,543
3	Of which IRB approach	402,708	400,986	34,150
4	**Counterparty credit risk**	**6,841**	**7,377**	**568**
4a	Of which CVA Risk	1,516	1,714	121
4b	Of which default risk exposures in respect of SFTs	139	138	12
4c	Of which default fund contribution to central counterparties	323	193	26
5a	Of which CEM	4,863	5,332	409
7	Equity exposures in banking book under the market-based approach	12,601	16,741	1,069
11	Settlement risk	0	0	0
12	**Securitization exposures in banking book**	**49**	**5,898**	**4**
13	Of which IRB(S) approach – ratings-based method	49	15	4
14	Of which IRB(S) approach – supervisory formula method	0	5,883	0
16	**Market risk**	**28,161**	**26,235**	**2,253**
17	Of which STM approach	6,782	6,818	543
18	Of which IMM approach	21,379	19,417	1,710
19	**Operational risk**	**31,005**	**30,791**	**2,480**
21	Of which STO approach	31,005	30,791	2,480
23	Amounts below the thresholds for deduction (subject to 250% RW)	15,913	15,595	1,349
24	Capital floor adjustment	0	0	0
24a	**Deduction to RWA**	**3,333**	**3,094**	**267**
24b	Of which portion of regulatory reserve for general banking risks and collective provisions which is not included in Tier 2 Capital	485	404	39
24c	Of which portion of cumulative fair value gains arising from the revaluation of land and buildings which is not included in Tier 2 Capital	2,848	2,690	228
25	**Total**	**525,734**	**535,121**	**44,149**

Template LI1: Differences between accounting and regulatory scopes of consolidation and mapping of financial statement categories with regulatory risk categories

The following table shows the differences between the carrying values as reported in the Group's financial statements following the scope of accounting consolidation and the carrying values under the scope of regulatory consolidation, with a breakdown into regulatory risk categories of every item of the assets and liabilities reported in financial statements based on the scope of accounting consolidation.

At 31 December, 2017:

	(a)	(b)	(c)	(d)	(e)	(f)	(g)
			Carrying values of items at 31 December 2017:				
	Carrying values as reported in published financial statements	Carrying values under scope of regulatory consolidation	subject to credit risk framework	subject to counterparty credit risk framework	subject to the securitization framework	subject to market risk framework	not subject to capital requirements or subject to deduction from capital
Assets							
Cash and balances with banks and other financial institutions	60,670	60,632	60,632	-	-	-	-
Placements with banks and other financial institutions	53,609	53,422	53,422	-	-	-	-
Trade bills	13,909	13,909	13,909	-	-	-	-
Trading assets	6,956	6,956	-	-	-	6,956	-
Financial assets designated at fair value through profit or loss	4,169	3,879	3,879	-	-	-	-
Positive fair value of derivatives	11,335	11,335	-	11,335	-	10,125	-
Loans and advances to customers	470,339	470,165	470,165	-	-	-	-
Available-for-sale financial assets	120,325	105,168	104,742	-	426	-	-
Held-to-maturity investments	9,798	8,690	8,690	-	-	-	-
Investments in subsidiaries	0	3,512	3,512	-	-	-	-
Investments in associates	9,429	4,990	4,990	-	-	-	-

Template LI1: Differences between accounting and regulatory scopes of consolidation and mapping of financial statement categories with regulatory risk categories (continued)

	(a)	(b)	(c)	(d)	(e)	(f)	(g)
			Carrying values of items at 31 December 2017:				
	Carrying values as reported in published financial statements	Carrying values under scope of regulatory consolidation	subject to credit risk framework	subject to counterparty credit risk framework	subject to the securitization framework	subject to market risk framework	not subject to capital requirements or subject to deduction from capital
Fixed assets							
- Investment properties	5,107	4,943	4,943	-	-	-	-
- Other property and equipment	7,643	7,431	7,431	-	-	-	-
Goodwill and intangible assets	1,959	1,475	-	-	-	-	1,475
Deferred tax assets	602	602	-	-	-	-	602
Other assets	33,092	31,338	31,129	76	133	-	-
Total assets	**808,942**	**788,447**	**767,444**	**11,411**	**559**	**17,081**	**2,077**
Liabilities							
Deposits and balances of banks and other financial institutions	26,981	26,746	-	-	-	-	26,746
Deposits from customers	571,684	571,684	-	-	-	-	571,684
Trading liabilities	11	11	-	-	-	-	11
Negative fair value of derivatives	12,077	12,067	-	-	-	-	12,067
Certificates of deposit issued	36,466	36,466	-	-	-	-	36,466
Current taxation	1,160	1,142	-	-	-	-	1,142
Debt securities issued	1,007	1,007	-	-	-	-	1,007
Deferred tax liabilities	551	397	-	-	-	-	397
Other liabilities	45,378	30,904	-	-	-	-	30,904
Loan capital - at amortised cost	12,413	12,413	-	-	-	-	12,413
Total liabilities	**707,728**	**692,837**	**-**	**-**	**-**	**-**	**692,837**

Template LI2: Main sources of differences between regulatory exposure amounts and carrying values in financial statements

The following table shows the main sources of differences between the carrying values in financial statements and the exposure amounts used for the calculation of regulatory capital in respect of the assets and liabilities based on the scope of regulatory consolidation:

At 31 December 2017:

		(a)	(b)	(c)	(d)	(e)
		Total	Items subject to:			
			credit risk framework	securitization framework	counterparty credit risk framework	market risk framework
1	**Asset carrying value amount under scope of regulatory consolidation (as per template LI1)**	786,370	767,444	559	11,411	17,081
2	- Liabilities carrying value amount under regulatory scope of consolidation (as per template LI1)	-	-	-	-	-
3	Total net amount under regulatory scope of consolidation	786,370	767,444	559	11,411	17,081
4	Off-balance sheet amounts	219,351	66,840	-	-	-
5	Differences due to consideration of provisions		3,439	-	-	-
6	Differences due to credit risk mitigation		(12,818)	-	-	-
7	Differences due to potential exposures for counterparty credit risk		-	-	18,084	-
8	**Exposure amounts considered for regulatory purposes**	872,040	824,905	559	29,495	17,081

Template LIA: Explanations of differences between accounting and regulatory exposure amounts

The following table describes the sources of differences from financial statements amounts to regulatory exposure amounts, as displayed in templates LI1 and LI2:

(a) Differences between the amounts in columns (a) and (b) in template LI1	The basis of consolidation for regulatory purposes is different from the basis of consolidation for accounting purposes. Subsidiaries included in consolidation for regulatory purposes are specified in a notice from the HKMA in accordance with Section 3C of the Capital Rules. Subsidiaries not included in consolidation for regulatory purposes are non-financial companies and the securities and insurance companies that are authorised and supervised by a regulator and are subject to supervisory arrangements regarding the maintenance of adequate capital to support business activities comparable to those prescribed for authorized institutions under the Capital Rules and the Banking Ordinance.
(b) The main drivers for the differences between accounting values and amounts considered for regulatory purposes shown in template LI2	The differences are mainly attributable to the following factors: - The carrying values reported in the financial statement are after deduction of collective and individual impairment allowances while the exposure amounts for regulatory purposes are before deducting impairment allowances (except for exposures under Standardised Approach of credit risk from which individual impairment allowances made against the exposures are deducted); - The exposure amounts for regulatory purposes are after the adjustment for the capital effect of recognized credit risk mitigation on the principal amounts; - Counterparty credit risk exposures for regulatory purposes consist of both the current exposures and the potential exposures which are derived by applying the credit conversion factor (CCF) to the notional principal of the transactions or contracts.
(c) Systems and controls applied to assets valuation	In order to ensure that the valuation estimates are prudent and reliable, the Group has implemented the following valuation processes and methodologies: <u>Independent Price Verification</u> As part of the control process, market prices or model inputs used in the valuation process are either determined or validated by an independent function. Fair values of financial instruments are determined with reference to external quoted market prices or observable model inputs and validated against secondary sources when appropriate. For fair values that are determined through valuation models, the control process may include validation of the logics, inputs, and outputs by an independent function, and evaluation of any adjustments required on top of the valuation models. Fair value estimates are generally subjective in nature, and are made as of a specific point in time based on the characteristics of the financial instruments and relevant market information. The Group measures fair values using the following hierarchy of methods: Level 1 – Quoted market price in an active market for an identical instrument. Level 2 – Valuation techniques based on observable input. This category includes instruments valued using: quoted market prices in active markets for similar instruments; quoted prices for similar instruments in markets that are considered less than active; or other valuation techniques where all significant inputs are directly or indirectly observable from market data. Level 3 – Valuation techniques using significant unobservable inputs. This category includes all instruments where the valuation technique includes inputs not based on observable data and the unobservable inputs could have a significant effect on the instrument's valuation. This category includes instruments that are valued based on quoted prices for similar instruments where significant unobservable adjustments or assumptions are required to reflect differences between the instruments. <u>Valuation adjustments</u> Valuation adjustment will be applied on instruments that are subject to fair value measurement with residual market risk, where significant valuation uncertainty and financial impact may arise. The bank considers that bid offer adjustment, liquidity valuation adjustment and model risk adjustment are relevant. (i) Bid offer adjustment:

Template LIA: Explanations of differences between accounting and regulatory exposure amounts (continued)

	For the fixed income, credit derivatives and interest rate derivatives portfolio, two types of instruments, namely interest rate futures and credit default swap, would be adjusted to the prudent side of the bid offer close-out price. Regarding other types of instruments such as interest rate swap and cross currency swap which have no specific hedging purpose, the adjustment would be derived from the duration. For the equities and equity derivatives portfolio, bid offer adjustment would be applied to volatility dependent derivatives instruments based on the outstanding Vega position. Adjustments are made per underlying equity, based on the bid offer spread of implied volatility observed from the listed derivatives market. Bid offer adjustment is not performed for cash equity instruments in the dynamic hedging portfolio that are being marked at the exchange closing price given the generally insignificant net Delta position per underlying equity. Adjustment is not required for other cash equity instruments held, as they are already being marked at the market bid price. For the currency option portfolio, bid offer adjustment is not being performed due to the insignificant outstanding position. Delta and Vega position will be periodically reviewed to determine whether adjustment is required. In general, bid offer adjustment would not be required if the position is marked to the more prudent side of the bid offer rate or price, such as foreign exchange spot, forward, currency futures and cash equities. (ii) Liquidity valuation adjustment: Liquidity valuation adjustment would be applied to level 2 and level 3 financial instruments only. For the fixed income, credit derivatives and interest rate derivatives portfolio, liquidity valuation adjustment is being performed for less liquid position based on the product specific nature. Adjustment for interest rate swap and cross currency swap would be derived from the duration if the interest rate yield curve has wide bid-ask spread. Adjustment for debt securities would be derived from bid-offer spread if significant position of an illiquid instrument is held by the Bank. For credit default swap and credit linked note, adjustment would be derived from bid offer spread of its reference obligation if the counterparty or its reference obligation does not have an investment grade credit rating as instruments linked with a non-investment grade counterparty or reference obligation usually are not liquid in the market. For convertible asset swap, adjustment would not be required as the instrument is expected to be held until maturity and not expected to be sold in the secondary market. For interest rate futures, the adjustment is determined by the price difference between the day high and day low if significant position is held relative to open interest of the futures. For the equity derivatives portfolio, liquidity valuation adjustment is not being performed for level 2 and 3 equity derivatives instruments considering that the outstanding positions largely originate from dynamic hedging of callable bull / bear contracts and warrants issued and the Bank is the market maker for such products. For other customer derivatives products such as equity linked deposit, since customers are normally not allowed or expected to early terminate the contracts, thus the associated hedging positions would be held to expiration by the Bank at the same time. Moreover, the Bank has established progressively stringent individual position limits according to the underlying equity's average turnover and market capitalization. As a result, any residual positions would be insignificant relative to market liquidity and would not cause any material adverse impact to the overall valuation. For the foreign exchange portfolio, liquidity valuation adjustment of spot and forward is not being performed due to the highly liquid market and insignificant positions on minor currencies. Liquidity valuation adjustment for currency futures would be applied if significant position is held relative to open interest of the futures, and would be determined by the price difference between the day high and day low. For the currency option portfolio, liquidity valuation adjustment is not being performed due to insignificant position. Delta and Vega position will be periodically reviewed to determine whether adjustment is required. (iii) Model risk adjustment: Model risk adjustment would be considered for structured products that are priced by simulation technique. The adjustment would be based on the alternate model if there is a significant variance between the original valuation and the price derived from alternate model.

Table CRA: General information about credit risk

Overview

Credit risk is the risk of loss arising from a borrower or counterparty failing to meet its obligations. Credit risk exists in the trading book and banking book, as well as from on- and off-balance sheet transactions of the Group. It arises principally from lending, trade finance and treasury businesses.

For the purpose of this document, any reference to exposures related to "credit risk" is referring to the same scope (i.e. non-securitization exposures excluding counterparty credit risk) unless otherwise specified.

The Group has established policies, procedures, risk profile and rating systems to identify, measure, monitor, control, and report on credit risk. In this connection, guidelines for management of credit risk have been laid down in the Group's Credit Risk Management Manual which is in line with the business strategy and risk appetite and above all, the regulatory guidelines and statutory requirements. These guidelines stipulate delegated lending authorities, credit underwriting criteria, credit monitoring processes, an internal rating structure, credit recovery procedures and a provisioning policy. They are reviewed and enhanced on an ongoing basis to cater for market changes, statutory requirements, and best practices in risk management processes.

Also, credit risk control limits are set for different levels. Risk, return, and market situation are considered when setting all limits. Active limit monitoring is undertaken.

Credit Risk Management

Pursuant to the establishment of a new framework of Enterprise Risk Management ("ERM"), a "Three Lines of Defence" model has been adopted by the Group as follows:

- The first line of defence: Risk Owners;
- The second line of defence: Risk Controllers; and
- The third line of defence: Internal Audit Division ("IAD").

Credit risk is one of the major risk types identified by the Group under the ERM framework. The Head of Credit Risk Management Department ("CRMD") under Risk Management Division ("RMD") is the Risk Controller of Credit Risk who is responsible for setting out a credit risk management governance framework, monitoring credit risk independently, and supporting the Credit Committee in managing all credit risk-related issues of the Group. Credit Committee receives a variety of reports on the credit risk exposures including asset quality and loan impairment charges, total exposures and RWAs, as well as updates on specific loan portfolios that are considered to have heightened credit risk.

As a prudent measure for the credit environment, CRMD has reviewed its roles, functions and organization structure, in particular, to ensure that under ERM framework, the first line of defence holds frontline positions in identification, assessment, management and reporting of risk exposures, having regard to the Group's risk appetite, policies, procedures and controls.

Being the third line of defence, IAD is responsible for providing assurance on the effectiveness of the Group's risk management framework including risk governance arrangements.

Template CR1: Credit quality of exposures

The table below provides an overview of the credit quality of on- and off-balance sheet exposures as at 31st December 2017:

		(a)	(b)	(c)	(d)
		Gross carrying amounts of		Allowances / impairments	Net values
	(HK$ million)	Defaulted exposures	Non-defaulted exposures		
1	Loans	5,178	596,185	3,438	597,925
2	Debt securities	-	121,109	-	121,109
3	Off-balance sheet exposures	-	219,068	-	219,068
4	***Total***	**5,178**	**936,362**	**3,438**	**938,102**

Template CR2: Changes in defaulted loans and debt securities

The table below provides information on the changes in defaulted loans and debt securities, including any changes in the amount of defaulted exposures, movements between non-defaulted and defaulted exposures, and reductions in the defaulted exposures due to write-offs as at 31st December 2017 and 30th June 2017 respectively:

		(a)
	(HK$ million)	Amount
1	**Defaulted loans and debt securities at end of the previous reporting period (30th June 2017)**	**6,957**
2	Loans and debt securities that have defaulted since the last reporting period	1,050
3	Returned to non-defaulted status	(165)
4	Amounts written off	(1,516)
5	Other changes*	(1,148)
6	**Defaulted loans and debt securities at end of the current reporting period (31st December 2017)**	**5,178**

* Other changes include loan repayment, disposal of the impaired loans and exchange rate difference

Table CRB: Additional disclosure related to credit quality of exposures

The Group classifies the loans and advances in accordance with the loan classification system required to be adopted for reporting to the HKMA.

The credit quality of loans and advances to customers can be analysed as follows:

It includes analysis on the exposures that are "neither past due nor impaired", "past due but not impaired" and "impaired".

Gross loans and advances to customers	December 2017 (HK$ million)
– neither past due nor impaired	468,183
– past due but not impaired	416
– impaired	5,177
Total	473,776

Of which,

Gross loans and advances to customers that are neither past due nor impaired	December 2017 (HK$ million)
– pass	463,081
– special mention	5,102
Total	468,183

Also, the ageing analysis of loans and advances to customers that are past due but not impaired.

Gross loans and advances to customers that are past due but not impaired	December 2017 (HK$ million)
– overdue 3 months or less	416
– overdue more than 3 months	0
Total	416

Loans and advances that would be past due or impaired had the terms not been renegotiated amounted to HK$108 million as at 31st December, 2017.

Loans and advances that are past due for more than 90 days but are not impaired amounted to HK$0 as at 31st December, 2017.

The Group has laid down guidelines for determining the impairment loss allowances.

At each of the reporting period end, the carrying amount of the Group's assets are reviewed to determine whether there is objective evidence of impairment. If internal and external sources of information indicate such evidence exists, the carrying amount is reduced to the estimated recoverable amount and an impairment loss is recognised in the income statement.

The approach and treatment of impairment allowance of different types of assets (including loans and advances, held-to-maturity investments, available-for-sale financial assets and other assets) are elaborated in the Group's impairment allowance policy.

Loans and receivables with renegotiated terms are loans that have been restructured due to deterioration in the borrower's financial position and where the Group has made concessions that it would not otherwise consider.

Renegotiated loans and receivables are subject to ongoing monitoring to determine whether they remain impaired or past due. The original loan that is renegotiated is derecognised and a new financial asset is recognised at fair value if the original loan agreement is cancelled and a new agreement made on substantially different terms.

Table CRC: Qualitative disclosures related to credit risk mitigation

Process of managing and recognising credit risk mitigation

In evaluating the credit risk associated with an individual customer or counterparty, financial strength and repayment ability are always the primary considerations. Credit risk may be mitigated by obtaining recognised collateral and guarantees from the customer or counterparty. Meanwhile, recognised netting is not adopted by the Group.

The relevant policies and processes relating to the use of credit risk mitigation are established and approved by Credit Committee, in which guidelines and collateral valuation parameters are subject to regular reviews to ensure their effectiveness over credit risk management.

The Group applies safe custodian of collaterals, regular re-valuation and close monitoring. In particular, the Group monitors the value of the collateral on a sufficiently frequent basis with respect to the nature of collateral and market practice, and at least annually. Marketable securities are marked-to-market on a daily basis whilst valuations on properties are reviewed periodically.

The most common method of mitigating credit risk is to lend against eligible collateral. The extent of collateral coverage over the Group's loans and advances to customer depends on the type of customers and the product offered. Types of collateral include residential properties (in the form of mortgages over property), other properties, other registered securities over assets, cash deposits, standby letters of credit and guarantees.

Template CR3: Overview of recognised credit risk mitigation

The following table presents the extent of credit risk exposures covered by different types of recognised CRM as at 31st December 2017:

	(HK$ million)	(a) Exposures unsecured: carrying amount	(b1) Exposures to be secured	(b) Exposures secured by recognised collateral	(d) Exposures secured by recognised guarantees	(f) Exposures secured by recognised credit derivative contracts
1	Loans	284,910	313,015	252,621	6,540	0
2	Debt securities	93,267	27,842	0	27,568	0
3	**Total**	**378,177**	**340,857**	**252,621**	**34,108**	**0**
4	Of which defaulted	1,156	2,963	2,628	0	0

Table CRD: Qualitative disclosures on use of ECAI ratings under STC approach

The Group adopts the Standardised approach, which mainly features the risk-weighting of credit risk exposures according to credit ratings provided by External Credit Assessment Institutions ("ECAIs") recognised by the HKMA, in assessing the capital adequacy of credit risk exposures which do not qualify for or are exempted from the use of an IRB approach.

Credit ratings from Moody's Investors Service and Standard and Poor's Ratings Services are used in the Group for risk-weighting credit risk exposures under the following exposure classes:

- Sovereign;
- Public sector entity;
- Bank;
- Securities firm;
- Corporate; and
- Collective investment scheme.

In accordance with the requirements prescribed in Part 4 of the Banking (Capital) Rules in respect of the application of ECAI ratings, for an exposure falling under any of the exposure classes listed above that consists of a debt obligation issued or undertaken by the obligor or an interest in a collective investment scheme which has one or more than one ECAI issue specific rating, the Group would apply the issue specific rating(s) directly in risk-weighting the exposure; while for an exposure falling under one of the first five exposure classes listed above which does not have an ECAI issue specific rating and the obligor of which has an ECAI issuer rating but does not have a long-term ECAI issue specific rating assigned to a debt obligation issued or undertaken by the obligor, the Group would use the ECAI issuer rating in risk-weighting the exposure under any of the following circumstances:

- The use of the ECAI issuer rating would result in the allocation of a risk weight to the exposure that would be equal to, or higher than, the risk weight allocated to the exposure on the basis that the obligor has neither an ECAI issuer rating nor an ECAI issue specific rating assigned to a debt obligation issued or undertaken by the obligor; the ECAI issuer rating is only applicable to unsecured exposures to the obligor as an issuer that are not subordinated to other exposures to that obligor; and the exposure to the obligor ranks equally with, or is subordinated to, the unsecured exposures referred to above.

- The use of the ECAI issuer rating would result in the allocation of a risk weight to the exposure that would be lower than the risk weight allocated to the exposure on the basis that the obligor has neither an ECAI issuer rating nor an ECAI issue specific rating assigned to a debt obligation issued or undertaken by the obligor; the ECAI issuer rating is only applicable to unsecured exposures to the obligor as an issuer that are not subordinated to other exposures to that obligor; and the exposure to the obligor is not subordinated to other exposures to the obligor as an issuer.

Template CR4: Credit risk exposures and effects of recognised credit risk mitigation – for STC approach

The following table illustrates the effect of any recognised CRM (including recognised collateral under both comprehensive and simple approaches) on the calculation of credit risk capital requirements under STC approach as at 31st December 2017:

		(a)	(b)	(c)	(d)	(e)	(f)
		Exposures pre-CCF and pre-CRM		Exposures post-CCF and post-CRM		RWA and RWA density	
	Exposure Classes	On-balance sheet amount (HK$ Mn)	Off-balance sheet amount (HK$ Mn)	On-balance sheet amount (HK$ Mn)	Off-balance sheet amount (HK$ Mn)	RWA (HK$ Mn)	RWA density
1	Sovereign exposures	83,089	0	83,089	0	852	1.03%
2	PSE exposures	815	0	892	123	88	8.68%
2a	Of which: domestic PSEs	0	0	77	123	40	20.00%
2b	Of which: foreign PSEs	815	0	815	0	48	5.90%
3	Multilateral development bank exposures	0	0	0	0	0	-
4	Bank exposures	69	84	69	84	31	20.00%
5	Securities firm exposures	25	5	25	0	12	50.00%
6	Corporate exposures	14,947	4,989	11,845	868	10,561	83.07%
7	CIS exposures	0	0	0	0	0	-
8	Cash items	0	0	0	0	0	-
9	Exposures in respect of failed delivery on transactions entered into on a basis other than a delivery-versus-payment basis	0	0	0	0	0	-
10	Regulatory retail exposures	14,097	5,818	13,015	26	9,781	75.00%
11	Residential mortgage loans	9,928	764	9,592	175	4,353	44.57%
12	Other exposures which are not past due exposures	13,808	2,512	5,767	129	5,896	100.00%
13	Past due exposures	198	0	198	0	215	108.71%
14	Significant exposures to commercial entities	0	0	0	0	0	-
15	**Total**	**136,976**	**14,172**	**124,492**	**1,405**	**31,789**	**25.25%**

Template CR5: Credit risk exposures by asset classes and by risk weights – for STC approach

The following table presents a breakdown of credit risk exposures under STC approach by asset classes and by risk weights as at 31st December 2017:

	(HK$ million)	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(ha)	(i)	(j)
	Risk Weight / Exposure Class	0%	10%	20%	35%	50%	75%	100%	150%	250%	Others	Total credit risk exposures amount (post CCF and post CRM)
1	Sovereign exposures	78,827	0	4,262	0	0	0	0	0	0	0	83,089
2	PSE exposures	574	0	441	0	0	0	0	0	0	0	1,015
2a	Of which: domestic PSEs	0	0	200	0	0	0	0	0	0	0	200
2b	Of which: foreign PSEs	575	0	240	0	0	0	0	0	0	0	815
3	Multilateral development bank exposures	0	0	0	0	0	0	0	0	0	0	0
4	Bank exposures	0	0	153	0	0	0	0	0	0	0	153
5	Securities firm exposures	0	0	0	0	25	0	0	0	0	0	25
6	Corporate exposures	0	0	77	0	4,181	0	8,455	0	0	0	12,713
7	CIS exposures	0	0	0	0	0	0	0	0	0	0	0
8	Cash items	0	0	0	0	0	0	0	0	0	0	0
9	Exposures in respect of failed delivery on transactions entered into on a basis other than a delivery-versus-payment basis	0	0	0	0	0	0	0	0	0	0	0
10	Regulatory retail exposures	0	0	0	0	0	13,041	0	0	0	0	13,041
11	Residential mortgage loans	0	0	0	8,198	0	341	1,228	0	0	0	9,767
12	Other exposures which are not past due exposures	0	0	0	0	0	0	5,896	0	0	0	5,896
13	Past due exposures	0	0	0	0	0	0	163	35	0	0	198
14	Significant exposures to commercial entities	0	0	0	0	0	0	0	0	0	0	0
15	**Total**	**79,401**	**0**	**4,933**	**8,198**	**4,206**	**13,382**	**15,742**	**35**	**0**	**0**	**125,897**

Table CRE: Qualitative disclosures related to internal models for measuring credit risk under IRB approach

The Group mainly adopts the IRB approach and relies on its own internal rating models for assessments of the Group's capital adequacy in relation to credit risk exposures.

Overview of the Group's Application of IRB Approach

The Group has been approved by the Hong Kong Monetary Authority pursuant to the Banking (Capital) Rules to use the respective IRB approaches to calculate its credit risk for non-securitisation exposures falling under the following exposure classes:

Exposure class	Description	IRB approach
Corporate	Specialised lending and exposures to small-and-medium sized corporates and other corporates which have sufficient financial information for PD estimation	Specialised lending: Supervisory slotting criteria approach Other than specialised lending: Foundation IRB approach
Bank	Exposures to banks, securities firms and public sector entities which have sufficient financial information for PD estimation	Foundation IRB approach
Retail	Qualifying revolving retail exposures, small business retail exposures and other retail exposures to individuals in Hong Kong, and mortgages to individuals and property holding shell companies in Hong Kong and Mainland China	Retail IRB approach
Equity	All direct and indirect equity interests in publicly-traded and private companies	Market-based approach
Other	All cash items and other items	Specific risk-weighting approach

The table below indicates the portion of EAD within the Group covered by the Standardised approach and the respective IRB approaches for each of the exposure classes as at 31st December 2017:

Exposure class	Standardised approach	IRB approaches					
		Foundation IRB approach	Supervisory slotting criteria approach	Retail IRB approach	Market-based approach	Specific risk-weighting approach	Other
Sovereign	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Corporate	2.91%	91.07%	6.02%	0.00%	0.00%	0.00%	0.00%
Bank	0.33%	99.67%	0.00%	0.00%	0.00%	0.00%	0.00%
Retail	18.64%	0.00%	0.00%	81.36%	0.00%	0.00%	0.00%
Equity	0.00%	0.00%	0.00%	0.00%	33.06%	0.00%	66.94%
Other	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%

Control Mechanisms for Internal Models

Risk Strategy & Governance Department under the Risk Management Division is responsible for the initial design and development, ongoing enhancement and validation of the Group's credit risk internal rating models. To ensure that the internal rating models are robust, they should be reviewed by functions independent from the function in charge of development. For this purpose, the Independent Validation Section has been established within Risk Management Division to validate the internal rating models independently while Internal Audit Division is responsible for reviewing the validation process and estimation of the risk components of the internal rating models. All credit risk internal rating models are subject to the review and approval by the Credit Committee, which has been delegated by the Board of Directors to deal with all credit risk related issued of the Group.

Table CRE: Qualitative disclosures related to internal models for measuring credit risk under IRB approach (continued)

To ensure that the Credit Committee has sufficient information to execute the review and approval of the internal rating models, reports with the following information should be submitted by Risk Strategy & Governance Department to the Credit Committee regularly:

- risk profile by grade;
- risk rating migration across grades;
- estimation of relevant parameters per grade;
- comparison of realised default rates (LGDs and EADs where applicable) against expectation;
- changes in regulatory capital due to model enhancement;
- results of credit risk stress-testing; and
- material changes or exceptions from established policies that will materially impact the operations of the internal rating models.

Main Characteristics of Internal Models

The Group has developed internal models for estimation of the probability of default ("PD") of obligors in the bank, corporate and retail exposure classes. In addition, internal models for estimation of the loss given default ("LGD") and exposure at default ("EAD") have also been developed for retail exposures. As at 31st December 2017, approximately 85% of the Group's exposures under IRB approach (measured in terms of RWA) are covered by internal models.

Internal Models for non-Retail Portfolios

The scope of application of different PD models is determined according to the nature of counterparties. The Bank PD model is applied to exposures to bank obligors while the Corporate PD model is applied to exposures to obligors that are corporates and non-bank financial institutions (including in particular securities firms and public sector entities).

The Bank PD model relies on financial information as the base rating and expert qualitative assessment as exceptional rating adjustment. As internal default data is not available for this low default portfolio, the PDs are estimated with reference to the external credit ratings of the obligors and calibrated to the long-run default rates associated with respective external credit ratings published by ECAIs.

The Corporate PD model relies heavily on the statistical analysis of quantitative financial information and expert qualitative assessment of individual obligors. As there are sufficient internal default data for this portfolio, the PDs are estimated with reference to the historical internal default data and calibrated to the long-run default rates from the Group's internal data.

Under the Foundation IRB approach, the Group applies the supervisory estimates in determining the LGD and EAD for non-retail portfolios.

Internal Models for Retail Portfolio

The retail portfolio has been segmented into various sub-portfolios according to product characteristics with one PD model developed for each of the sub-portfolios. As more sufficient sample is available for retail exposures, the retail PD models are built on a pool basis with reference to the historical internal default data and the PD estimates are calibrated to the long-run default rates from the Group's internal data.

Under the Retail IRB approach, the Group also generates its own LGD and EAD estimates for retail portfolios with the use of internal models.

The retail LGD models are developed according to the historical data collected during the recovery processes. In determining the time lapse between default event and closure of the exposure in LGD estimation, an exposure is considered to be closed when there is no reasonable prospect of further recovery. All LGD models are calibrated to an economic downturn. For secured retail portfolios, downturn LGDs are estimated by adjusting the LGDs with reference to the highest drop in the corresponding macroeconomic index associated with respective collateral types; whilst for unsecured retail portfolios, downturn LGDs refer to the highest actual LGDs in the last 5 years.

EAD is calculated as the sum of on-balance sheet amount and credit equivalent amount of off-balance sheet items. For the Hong Kong credit card portfolio, two distinctive models for estimation of the credit equivalent amount and hence EAD have been developed taking into consideration the different behaviours of accounts with high and low utilisations respectively. For Hong Kong credit card exposures with high utilisation, the credit equivalent amount is calculated as the product of utilisation ratio and credit limit; while for those with low utilisation, the historical realised further drawdown ratio of unutilised portion in the year prior to default is used in estimating the credit equivalent amount and hence the EAD.

Table CRE: Qualitative disclosures related to internal models for measuring credit risk under IRB approach (continued)

For other retail exposures, credit equivalent amounts for performing accounts are estimated with a credit conversion factor of 100% and those for non-performing accounts with a credit conversion factor of 0%.

The main characteristics of individual component models are summarised in the table below:

Portfolio	Component	Number of Material Model(s)	Model Description and Methodology	Regulatory Floor
Bank	PD	1	Statistical model built on financial information as the base rating and expert qualitative assessment as exceptional rating adjustment, and calibrated to the long-run default rates associated with respective external credit ratings published by ECAIs.	0.03%
Corporate	PD	1	Statistical model built by combining financial information and expert qualitative assessment, and calibrated to the long-run default rates from the Group's internal data.	0.03%
Retail – Hong Kong Credit Card	PD	1	Statistical model built on internal and bureau data, and calibrated to the long-run default rates from the Group's internal data.	0.03%
	LGD	1	Statistical model built on internal loss and recovery data, with the downturn LGD referring to the highest LGD in the last 5 years.	–
	EAD	2	For high utilisation accounts, the credit equivalent amount is calculated as the product of utilisation ratio and credit limit; while for low utilisation accounts, the historical realised further drawdown ratio of unutilised portion in the year prior to default is used in estimating the credit equivalent amount.	–
Retail – Hong Kong Unsecured Overdraft	PD	1	Statistical model built on internal and bureau data, and calibrated to the long-run default rates from the Group's internal data.	0.03%
	LGD	1	Statistical model built on internal loss and recovery data, with the downturn LGD referring to the highest LGD in the last 5 years.	–
	EAD	1	In estimating the credit equivalent amount and hence the EAD, a credit conversion factor of 100% is applied to performing accounts and a credit conversion factor of 0% to non-performing accounts.	–

Table CRE: Qualitative disclosures related to internal models for measuring credit risk under IRB approach (continued)

Portfolio	Component	Number of Material Model(s)	Model Description and Methodology	Regulatory Floor
Retail – Hong Kong Revolving Loan	PD	1	Statistical model built on internal and bureau data, and calibrated to the long-run default rates from the Group's internal data.	0.03%
	LGD	1	Statistical model built on internal loss and recovery data, with the downturn LGD referring to the highest LGD in the last 5 years.	–
	EAD	1	In estimating the credit equivalent amount and hence the EAD, a credit conversion factor of 100% is applied to performing accounts and a credit conversion factor of 0% to non-performing accounts.	–
Retail – Hong Kong Other Unsecured Loan	PD	1	Statistical model built on internal and bureau data, and calibrated to the long-run default rates from the Group's internal data.	0.03%
	LGD	1	Statistical model built on internal loss and recovery data, with the downturn LGD referring to the highest LGD in the last 5 years.	–
	EAD	1	In estimating the credit equivalent amount and hence the EAD, a credit conversion factor of 100% is applied to performing accounts and a credit conversion factor of 0% to non-performing accounts.	–
Retail – Hong Kong Residential Mortgage	PD	1	Statistical model built on historical default data with consideration of mortgage scheme type, borrower type and delinquency status, and calibrated to the long-run default rates from the Group's internal data.	0.03%
	LGD	1	Statistical model built on internal loss and recovery data, with the downturn LGD estimated by adjusting the LGD with reference to the historical highest drop in Hong Kong Private Domestic Price Index.	10%
	EAD	1	In estimating the credit equivalent amount and hence the EAD, a credit conversion factor of 100% is applied to performing accounts and a credit conversion factor of 0% to non-performing accounts.	–
Retail – Hong Kong Non-residential Mortgage	PD	1	Statistical model built on historical default data and calibrated to the long-run default rates from the Group's internal data.	0.03%
	LGD	1	Statistical model built on internal loss and recovery data, with the downturn LGD estimated by adjusting the LGD with reference to the historical highest drop in Hong Kong Private Office Price Index.	–
	EAD	1	In estimating the credit equivalent amount and hence the EAD, a credit conversion factor of 100% is applied to performing accounts and a credit conversion factor of 0% to non-performing accounts.	–

Table CRE: Qualitative disclosures related to internal models for measuring credit risk under IRB approach (continued)

Portfolio	Component	Number of Material Model(s)	Model Description and Methodology	Regulatory Floor
Retail – Hong Kong Other Secured Loan	PD	1	Statistical model built on historical default data with consideration of collateral type and delinquency status, and calibrated to the long-run default rates from the Group's internal data.	0.03%
	LGD	1	Statistical model built on internal loss and recovery data, with the downturn LGD estimated by adjusting the LGD with reference to the historical highest drop in License Fee of Urban Taxi.	–
	EAD	1	In estimating the credit equivalent amount and hence the EAD, a credit conversion factor of 100% is applied to performing accounts and a credit conversion factor of 0% to non-performing accounts.	–
Retail – China Mortgage Loan	PD	1	Statistical model built on historical default data with consideration of delinquency status, and calibrated to the long-run default rates from the Group's internal data.	0.03%
	LGD	1	Statistical model built on internal loss and recovery data, with the downturn LGD estimated by adjusting the LGD with reference to the historical highest drop in China Property Price Index.	–
	EAD	1	In estimating the credit equivalent amount and hence the EAD, a credit conversion factor of 100% is applied to performing accounts and a credit conversion factor of 0% to non-performing accounts.	–

Comparison of Actual Default Rate against Estimated Probability of Default

The following tables present a comparison of the actual percentage of default during the last three reporting periods and the corresponding 1-year probability of default estimated as at the end of the previous financial year-ends.

2017

Exposure class	Actual percentage of default for the year ended 31st December, 2017	Estimated 1-year probability of default at 31st December, 2016
Bank	0.00%	0.27%
Corporate	1.20%	4.21%
Retail – QRRE	0.39%	0.56%
Retail – Residential mortgage exposures	0.16%	1.00%
Retail – small business retail exposures	1.70%	2.45%
Other retail exposures to individuals	2.01%	3.86%

Table CRE: Qualitative disclosures related to internal models for measuring credit risk under IRB approach (continued)

2016

Exposure class	Actual percentage of default for the year ended 31st December, 2016	Estimated 1-year probability of default at 31st December, 2015
Bank	0.00%	0.29%
Corporate	2.62%	3.56%
Retail – QRRE	0.41%	0.58%
Retail – Residential mortgage exposures	0.26%	1.47%
Retail – small business retail exposures	2.39%	3.64%
Other retail exposures to individuals	1.97%	4.13%

2015

Exposure class	Actual percentage of default for the year ended 31st December, 2015	Estimated 1-year probability of default at 31st December, 2014
Bank	0.00%	0.70%
Corporate	2.40%	1.37%
Retail – QRRE	0.30%	0.71%
Retail – Residential mortgage exposures	0.30%	0.71%
Retail – small business retail exposures	4.07%	2.95%
Other retail exposures to individuals	2.10%	2.93%

An actual default rate for a particular financial year is “point-in-time” in nature and, as the economy moves above or below cyclical norms, may differ from the corresponding PD estimate which is measured on a “through-the-cycle” basis.

As shown in the above tables, the actual default rates have been mostly lower than the corresponding PD estimates in the last three reporting periods.

Template CR6: Credit risk exposures by portfolio and PD ranges – for IRB approach

The following table presents the main parameters of internal models used for the calculation of credit risk capital requirements under the IRB approach at 31st December 2017:

		(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)
	PD Scale	Original on-balance sheet gross exposure (HK$ Mn)	Off-balance sheet exposure pre-CCF (HK$ Mn)	Average CCF	EAD post-CRM and post-CCF (HK$ Mn)	Average PD	Number of obligors	Average LGD	Average maturity	RWA (HK$ Mn)	RWA density	EL (HK$ Mn)	Provisions (HK$ Mn)
Bank	0.00 to <0.15	62,187	692	11.60%	64,438	0.08%	285	44.78%		22,355	34.69%	24	
	0.15 to <0.25	25,239	621	4.78%	27,223	0.23%	93	39.19%		14,741	54.15%	24	
	0.25 to <0.50	14,952	545	100.00%	15,074	0.35%	63	45.00%		11,307	75.01%	24	
	0.50 to <0.75	4,534	166	78.53%	4,772	0.51%	44	44.98%		3,896	81.64%	11	
	0.75 to <2.50	2,833	464	64.22%	3,131	1.03%	36	44.86%		3,273	104.56%	15	
	2.50 to <10.00	539	78	75.00%	598	4.48%	5	45.00%		927	155.11%	12	
	10.00 to <100.00	0	0	-	0	-	0	-		0	-	0	
	100.00 (Default)	0	0	-	0	-	0	-		0	-	0	
	Sub-total	**110,284**	**2,566**	**44.51%**	**115,236**	**0.22%**	**526**	**43.50%**		**56,499**	**49.03%**	**110**	**96**
Corporate – small-and-medium sized corporates	0.00 to <0.15	5,287	1,424	12.82%	5,470	0.13%	66	38.06%		1,327	24.26%	3	
	0.15 to <0.25	4,882	26	0.00%	4,882	0.20%	11	36.60%		1,549	31.73%	4	
	0.25 to <0.50	5,209	777	57.37%	5,655	0.32%	126	38.59%		2,239	39.59%	7	
	0.50 to <0.75	4,624	765	31.57%	4,866	0.50%	254	39.08%		2,506	51.50%	10	
	0.75 to <2.50	24,828	5,245	38.69%	26,798	1.25%	886	36.55%		17,045	63.61%	122	
	2.50 to <10.00	12,077	4,096	10.17%	11,906	5.86%	409	32.67%		10,465	87.89%	223	
	10.00 to <100.00	7,215	646	27.73%	7,357	30.65%	195	22.75%		7,663	104.15%	513	
	100.00 (Default)	1,493	0	50.00%	1,493	100.00%	312	37.07%		3,508	234.98%	321	
	Sub-total	**65,615**	**12,979**	**26.93%**	**68,427**	**7.07%**	**2,259**	**34.87%**		**46,302**	**67.67%**	**1,203**	**1,116**

Template CR6: Credit risk exposures by portfolio and PD ranges – for IRB approach (continued)

	PD Scale	(a) Original on-balance sheet gross exposure (HK$ Mn)	(b) Off-balance sheet exposure pre-CCF (HK$ Mn)	(c) Average CCF	(d) EAD post-CRM and post-CCF (HK$ Mn)	(e) Average PD	(f) Number of obligors	(g) Average LGD	(h) Average maturity	(i) RWA (HK$ Mn)	(j) RWA density	(k) EL (HK$ Mn)	(l) Provisions (HK$ Mn)
Corporate – other (including purchased corporate receivables)	0.00 to <0.15	32,725	5,074	64.32%	47,130	0.11%	208	44.56%		14,766	31.33%	23	
	0.15 to <0.25	19,229	8,104	30.11%	28,808	0.20%	126	42.71%		12,118	42.06%	24	
	0.25 to <0.50	36,594	5,779	56.61%	46,641	0.28%	247	42.96%		24,299	52.10%	56	
	0.50 to <0.75	36,263	14,884	29.82%	35,064	0.50%	234	36.40%		20,875	59.53%	64	
	0.75 to <2.50	133,132	74,813	15.95%	133,062	1.30%	920	36.45%		112,793	84.77%	628	
	2.50 to <10.00	37,379	28,004	12.81%	32,030	5.02%	365	30.11%		31,939	99.72%	442	
	10.00 to <100.00	6,156	3,277	0.55%	4,569	30.65%	80	29.25%		7,413	162.25%	409	
	100.00 (Default)	2,953	0	-	2,953	100.00%	99	40.14%		8,812	298.43%	664	
	Sub-total	**304,431**	**139,935**	**20.69%**	**330,257**	**2.45%**	**2,279**	**38.39%**		**233,015**	**70.56%**	**2,310**	**3,962**
Retail – QRRE	0.00 to <0.15	55	13,204	59.42%	7,901	0.14%	439,028	91.87%		578	7.31%	10	
	0.15 to <0.25	48	223	64.87%	193	0.24%	8,138	91.65%		22	11.29%	0	
	0.25 to <0.50	3,253	24,468	60.40%	18,033	0.35%	476,104	91.87%		2,800	15.53%	59	
	0.50 to <0.75	192	1,856	80.85%	1,693	0.59%	44,124	90.60%		391	23.10%	9	
	0.75 to <2.50	530	2,336	67.10%	2,097	1.34%	76,354	90.48%		890	42.44%	26	
	2.50 to <10.00	879	1,704	70.66%	2,083	5.16%	42,613	91.41%		2,313	111.06%	98	
	10.00 to <100.00	9	28	70.83%	28	24.86%	801	91.14%		66	234.09%	7	
	100.00 (Default)	37	0	0.00%	37	100.00%	32,236	91.39%		421	1131.65%	0	
	Sub-total	**5,003**	**43,819**	**61.76%**	**32,065**	**0.83%**	**1,119,398**	**91.68%**		**7,481**	**23.33%**	**209**	**43**

Template CR6: Credit risk exposures by portfolio and PD ranges – for IRB approach (continued)

	PD Scale	(a) Original on-balance sheet gross exposure (HK$ Mn)	(b) Off-balance sheet exposure pre-CCF (HK$ Mn)	(c) Average CCF	(d) EAD post-CRM and post-CCF (HK$ Mn)	(e) Average PD	(f) Number of obligors	(g) Average LGD	(h) Average maturity	(i) RWA (HK$ Mn)	(j) RWA density	(k) EL (HK$ Mn)	(l) Provisions (HK$ Mn)
Retail – Residential mortgage exposures (including both to individuals and to property-holding shell companies)	0.00 to <0.15	5,853	210	100.00%	6,062	0.09%	1,547	25.66%		1,077	17.76%	2	
	0.15 to <0.25	35,094	806	100.00%	35,900	0.23%	18,821	21.84%		6,305	17.56%	18	
	0.25 to <0.50	35,989	269	100.00%	36,258	0.34%	16,963	13.43%		5,463	15.07%	17	
	0.50 to <0.75	1,270	0	-	1,270	0.64%	586	30.07%		355	27.94%	2	
	0.75 to <2.50	1,788	112	100.00%	1,900	1.30%	2,058	11.69%		384	20.19%	3	
	2.50 to <10.00	851	0	100.00%	852	6.92%	767	31.97%		1,052	123.53%	19	
	10.00 to <100.00	1,269	0	-	1,269	17.05%	825	19.78%		1,346	106.08%	49	
	100.00 (Default)	289	0	-	289	100.00%	128	24.46%		857	297.23%	3	
	Sub-total	**82,403**	**1,397**	**100.00%**	**83,800**	**0.97%**	**41,695**	**18.45%**		**16,839**	**20.09%**	**113**	**955**
Retail – small business retail exposures	0.00 to <0.15	0	0	-	0	-	0	-		0	-	0	
	0.15 to <0.25	125	0	-	125	0.25%	38	29.28%		17	13.64%	0	
	0.25 to <0.50	81	4	100.00%	85	0.34%	40	12.49%		6	7.17%	0	
	0.50 to <0.75	123	14	100.00%	137	0.53%	220	65.45%		67	48.57%	1	
	0.75 to <2.50	461	29	100.00%	490	1.39%	361	24.09%		129	26.43%	1	
	2.50 to <10.00	58	2	100.00%	61	4.54%	103	49.97%		44	72.58%	1	
	10.00 to <100.00	10	0	-	9	17.59%	13	42.09%		8	81.34%	1	
	100.00 (Default)	9	1	0.00%	9	100.00%	10	46.70%		21	223.98%	4	
	Sub-total	**867**	**50**	**98.61%**	**916**	**2.40%**	**785**	**32.04%**		**292**	**31.86%**	**8**	**15**

Template CR6: Credit risk exposures by portfolio and PD ranges – for IRB approach (continued)

	PD Scale	(a) Original on-balance sheet gross exposure (HK$ Mn)	(b) Off-balance sheet exposure pre-CCF (HK$ Mn)	(c) Average CCF	(d) EAD post-CRM and post-CCF (HK$ Mn)	(e) Average PD	(f) Number of obligors	(g) Average LGD	(h) Average maturity	(i) RWA (HK$ Mn)	(j) RWA density	(k) EL (HK$ Mn)	(l) Provisions (HK$ Mn)
Other retail exposures to individuals	0.00 to <0.15	481	26	60.48%	497	0.03%	150	70.22%		38	7.68%	0	
	0.15 to <0.25	167	134	100.00%	301	0.22%	148	57.11%		70	23.36%	0	
	0.25 to <0.50	36	136	61.62%	120	0.35%	234	91.40%		64	53.56%	0	
	0.50 to <0.75	1,758	52	93.50%	1,806	0.54%	949	59.83%		805	44.55%	6	
	0.75 to <2.50	3,832	163	97.55%	3,990	1.56%	13,277	48.77%		2,317	58.07%	31	
	2.50 to <10.00	2,166	87	77.65%	2,234	4.13%	5,709	43.85%		1,430	64.01%	46	
	10.00 to <100.00	98	0	63.13%	98	23.83%	438	43.07%		97	97.96%	10	
	100.00 (Default)	138	0	-	138	100.00%	1,303	57.74%		932	676.89%	14	
	Sub-total	**8,676**	**598**	**85.07%**	**9,184**	**3.56%**	**22,208**	**51.81%**		**5,753**	**62.64%**	**107**	**112**
Total (sum of all portfolios)		**577,279**	**201,344**	**31.09%**	**639,885**	**2.29%**	**1,189,150**	**39.18%**		**366,181**	**57.23%**	**4,060**	**6,299**

Template CR7: Effects on RWA of recognised credit derivative contracts used as recognised credit risk mitigation – for IRB approach

The following table presents the effect of recognised credit derivative contracts on the calculation of credit risk capital requirements under the IRB approach as at 31st December 2017:

		(a)	(b)
(HK$ million)		Pre-credit derivatives RWA	Actual RWA
1	Corporate – Specialised lending under supervisory slotting criteria approach (project finance)	0	0
2	Corporate – Specialised lending under supervisory slotting criteria approach (object finance)	889	889
3	Corporate – Specialised lending under supervisory slotting criteria approach (commodities finance)	0	0
4	Corporate – Specialised lending under supervisory slotting criteria approach (income-producing real estate)	19,233	19,233
5	Corporate – Specialised lending (high-volatility commercial real estate)	0	0
6	Corporate – Small-and-medium sized corporates	46,302	46,302
7	Corporate – Other corporates	233,015	233,015
8	Sovereigns	0	0
9	Sovereign foreign public sector entities	0	0
10	Multilateral development banks	0	0
11	Bank exposures – Banks	55,991	55,991
12	Bank exposures – Securities firms	493	493
13	Bank exposures – Public sector entities (excluding sovereign foreign public sector entities)	15	15
14	Retail – Small business retail exposures	292	292
15	Retail – Residential mortgages to individuals	15,468	15,468
16	Retail – Residential mortgages to property-holding shell companies	1,371	1,371
17	Retail – Qualifying revolving retail exposures (QRRE)	7,481	7,481
18	Retail – Other retail exposures to individuals	5,753	5,753
19	Equity – Equity exposures under market-based approach (simple risk-weight method)	12,191	12,191
20	Equity – Equity exposures under market-based approach (internal models method)	410	410
21	Equity – Equity exposures under PD/LGD approach (publicly traded equity exposures held for long-term investment)	0	0
22	Equity – Equity exposures under PD/LGD approach (privately owned equity exposures held for long-term investment)	0	0
23	Equity – Equity exposures under PD/LGD approach (other publicly traded equity exposures)	0	0
24	Equity – Equity exposures under PD/LGD approach (other equity exposures)	0	0
25	Equity – Equity exposures associated with equity investments in funds (CIS exposures)	0	0
25a	Equity – Specified equity exposures to financial sector entities and commercial entities	15,913	15,913
26	Other – Cash items	47	47
27	Other – Other items	16,358	16,358
28	**Total**	**431,222**	**431,222**

Template CR8: RWA flow statements of credit risk exposures under IRB approach

The following table presents a flow statement explaining variations in the RWA for credit risk determined under the IRB approach as at 31st December 2017 and 30th September 2017 respectively:

(HK$ million)		(a) Amount
1	**RWA as at end of previous reporting period**	**400,986**
2	Asset size	-3,439
3	Asset quality	1,903
4	Model updates	0
5	Methodology and policy	0
6	Acquisitions and disposals	0
7	Foreign exchange movements	2,808
8	Other	450
9	**RWA as at end of reporting period**	**402,708**

Template CR9: Back-testing of PD per portfolio – for IRB approach

The following table provides back-testing data as at 31st December 2017 to validate the reliability of PD calculations, including a comparison of the PD used to calculate capital requirements with the effective default rates of obligors under the IRB approach:

(a)	(b)	(c)		(d)	(e)	(f)		(g)	(h)	(i)
Portfolio	PD Range	External Rating Equivalent		Weighted Average PD	Arithmetic average PD by obligors	Number of obligors		Defaulted obligors in the year	Of which: new defaulted obligors in the year	Average historical annual default rate
		Moody's	Standard & Poor's			Beginning of the year	End of the year			
Bank	0.00 to <0.15	Aaa to Baa1	AAA to BBB+	0.08%	0.07%	242	335	0	0	0.00%
	0.15 to <0.25	Baa1 to Baa2	BBB+ to BBB	0.21%	0.21%	159	262	0	0	0.00%
	0.25 to <0.50	Baa2 to Ba1	BBB to BB+	0.34%	0.34%	83	201	0	0	0.00%
	0.50 to <0.75	Ba1 to Ba2	BB+ to BB	0.50%	0.50%	49	73	0	0	0.00%
	0.75 to <2.50	Ba2 to B2	BB to B	1.08%	1.12%	35	67	0	0	0.00%
	2.50 to <10.00	B2 to Caa1	B to CCC+	2.74%	2.74%	2	10	0	0	0.00%
	10.00 to <100.00	Caa1 to C	CCC+ to C	-	-	0	0	0	0	-
Corporate - small-and-medium sized corporates	0.00 to <0.15	Aaa to Baa1	AAA to BBB+	0.14%	0.11%	74	81	0	0	0.00%
	0.15 to <0.25	Baa1 to Baa2	BBB+ to BBB	0.20%	0.20%	17	18	0	0	0.00%
	0.25 to <0.50	Baa2 to Ba1	BBB to BB+	0.39%	0.44%	426	446	0	0	0.22%
	0.50 to <0.75	Ba1 to Ba2	BB+ to BB	-	-	0	5	0	0	0.43%
	0.75 to <2.50	Ba2 to B2	BB to B	1.24%	1.28%	1,209	1,288	3	0	1.33%
	2.50 to <10.00	B2 to Caa1	B to CCC+	4.81%	5.38%	524	589	4	0	2.04%
	10.00 to <100.00	Caa1 to C	CCC+ to C	36.72%	36.72%	220	240	22	0	9.85%
Corporate - other (including purchased corporate receivables)	0.00 to <0.15	Aaa to Baa1	AAA to BBB+	0.11%	0.11%	228	262	0	0	0.00%
	0.15 to <0.25	Baa1 to Baa2	BBB+ to BBB	0.22%	0.22%	174	202	0	0	0.00%
	0.25 to <0.50	Baa2 to Ba1	BBB to BB+	0.42%	0.42%	473	548	1	0	0.29%
	0.50 to <0.75	Ba1 to Ba2	BB+ to BB	-	-	0	30	0	0	0.19%
	0.75 to <2.50	Ba2 to B2	BB to B	1.20%	1.24%	1,063	1,371	5	0	0.76%
	2.50 to <10.00	B2 to Caa1	B to CCC+	5.18%	4.86%	384	482	6	0	1.43%
	10.00 to <100.00	Caa1 to C	CCC+ to C	36.72%	36.72%	110	126	16	1	14.33%

Template CR9: Back-testing of PD per portfolio – for IRB approach (continued)

(a)	(b)	(c)		(d)	(e)	(f)		(g)	(h)	(i)
Portfolio	PD Range	External Rating Equivalent		Weighted Average PD	Arithmetic average PD by obligors	Number of obligors		Defaulted obligors in the year	Of which: new defaulted obligors in the year	Average historical annual default rate
		Moody's	Standard & Poor's			Beginning of the year	End of the year			
Retail – QRRE	0.00 to <0.15			0.14%	0.14%	417,728	417,772	110	0	0.02%
	0.15 to <0.25			0.23%	0.24%	8,174	8,832	6	0	0.08%
	0.25 to <0.50			0.35%	0.35%	485,925	498,180	1,229	13	0.20%
	0.50 to <0.75			0.59%	0.64%	54,975	64,310	170	28	0.34%
	0.75 to <2.50			1.23%	1.06%	102,846	140,329	934	51	0.52%
	2.50 to <10.00			5.12%	5.29%	44,423	45,372	1,870	20	4.48%
	10.00 to <100.00			25.02%	28.51%	581	582	124	0	29.05%
Retail – Residential mortgage exposures (including both to individuals and to property-holding shell companies)	0.00 to <0.15			0.09%	0.10%	1,476	1,983	0	0	0.02%
	0.15 to <0.25			0.23%	0.24%	19,390	23,622	5	0	0.06%
	0.25 to <0.50			0.34%	0.34%	18,804	18,808	15	0	0.11%
	0.50 to <0.75			0.64%	0.64%	895	1,490	0	0	0.21%
	0.75 to <2.50			1.47%	1.08%	2,388	2,544	4	0	0.17%
	2.50 to <10.00			6.96%	6.96%	758	758	5	0	1.26%
	10.00 to <100.00			16.80%	18.10%	1,413	1,422	42	0	4.28%
Retail – small business retail exposures	0.00 to <0.15			-	-	0	0	0	0	-
	0.15 to <0.25			0.25%	0.24%	84	86	0	0	0.00%
	0.25 to <0.50			0.34%	0.34%	57	58	0	0	0.36%
	0.50 to <0.75			0.53%	0.53%	456	487	4	0	0.29%
	0.75 to <2.50			1.37%	1.19%	424	470	3	0	0.50%
	2.50 to <10.00			4.82%	4.80%	522	567	12	0	2.95%
	10.00 to <100.00			13.93%	13.91%	43	44	8	0	24.74%

Template CR9: Back-testing of PD per portfolio – for IRB approach (continued)

(a)	(b)	(c)		(d)	(e)	(f)		(g)	(h)	(i)
Portfolio	PD Range	External Rating Equivalent		Weighted Average PD	Arithmetic average PD by obligors	Number of obligors		Defaulted obligors in the year	Of which: new defaulted obligors in the year	Average historical annual default rate
		Moody's	Standard & Poor's			Beginning of the year	End of the year			
Other retail exposures to individuals	0.00 to <0.15			0.04%	0.07%	98	215	0	0	0.00%
	0.15 to <0.25			0.25%	0.25%	157	167	0	0	0.17%
	0.25 to <0.50			0.35%	0.36%	203	207	1	0	2.74%
	0.50 to <0.75			0.52%	0.53%	985	1,563	1	0	0.06%
	0.75 to <2.50			1.56%	1.80%	14,375	22,144	206	49	1.40%
	2.50 to <10.00			3.86%	6.30%	6,444	8,813	280	64	2.95%
	10.00 to <100.00			23.63%	31.09%	695	748	93	7	13.43%

As at 31st December 2017, approximately 85% of the Group's exposures under IRB approach (in terms of RWA) are covered by internal models whose back-testing results are shown in the above table.

Template CR10: Specialised lending under supervisory slotting criteria approach and equities under simple risk-weight method – for IRB approach

I. Specialised Lending under supervisory slotting criteria approach – HVCRE

The following table presents quantitative information in respect of specialised lending – HVCRE under the supervisory slotting criteria approach as at 31st December 2017:

		(a)	(b)	(c)	(d)	(e)	(f)
Supervisory Rating Grade	Remaining Maturity	On-balance sheet exposure amount (HK$ Mn)	Off-balance sheet exposure amount (HK$ Mn)	SRW	EAD amount (HK$ Mn)	RWA (HK$ Mn)	Expected loss amount (HK$ Mn)
Strong ^	Less than 2.5 years	0	0	70%	0	0	0
Strong	Equal to or more than 2.5 years	0	0	95%	0	0	0
Good ^	Less than 2.5 years	0	0	95%	0	0	0
Good	Equal to or more than 2.5 years	0	0	120%	0	0	0
Satisfactory		0	0	140%	0	0	0
Weak		0	0	250%	0	0	0
Default		0	0	0%	0	0	0
Total		**0**	**0**		**0**	**0**	**0**

^ Use of preferential risk-weights.

Template CR10: Specialised lending under supervisory slotting criteria approach and equities under simple risk-weight method – for IRB approach (continued)

II. Specialised Lending under supervisory slotting criteria approach – Other than HVCRE

The following table presents quantitative information in respect of specialised lending – other than HVCRE under the supervisory slotting criteria approach as at 31st December 2017:

		(a)	(b)	(c)	(d)(i)	(d)(ii)	(d)(iii)	(d)(iv)	(d)(v)	(e)	(f)
Supervisory Rating Grade	Remaining Maturity	On-balance sheet exposure amount (HK$ Mn)	Off-balance sheet exposure amount (HK$ Mn)	SRW	EAD amount (HK$ Mn)					RWA (HK$ Mn)	Expected loss amount (HK$ Mn)
					PF	OF	CF	IPRE	Total		
Strong ^	Less than 2.5 years	0	0	50%	0	0	0	0	0	0	0
Strong	Equal to or more than 2.5 years	21,169	3,705	70%	0	439	0	23,490	23,929	16,751	96
Good ^	Less than 2.5 years	0	0	70%	0	0	0	0	0	0	0
Good	Equal to or more than 2.5 years	1,184	39	90%	0	8	0	1,176	1,184	1,065	10
Satisfactory		500	0	115%	0	500	0	0	500	574	14
Weak		624	92	250%	0	0	0	693	693	1,732	55
Default		60	0	0%	0	0	0	60	60	0	30
Total		**23,537**	**3,836**		**0**	**947**	**0**	**25,419**	**26,366**	**20,122**	**205**

^ Use of preferential risk-weights.

III. Equity exposures under the simple risk-weight method

The following table presents quantitative information in respect of equity exposures under the simple risk-weight method as at 31st December 2017:

	(a)	(b)	(c)	(d)	(e)
Categories	On-balance sheet exposure amount (HK$ Mn)	Off-balance sheet exposure amount (HK$ Mn)	SRW	EAD amount (HK$ Mn)	RWA (HK$ Mn)
Publicly traded equity exposures	0	0	300%	0	0
All other equity exposures	3,048	0	400%	3,048	12,191
Total	**3,048**	**0**		**3,048**	**12,191**

Table CCRA: Qualitative disclosures related to counterparty credit risk (including those arising from clearing through CCPs)

Counterparty Credit Risk Management

The Group has adopted the Current Exposure Method for regulatory capital calculation of its counterparty credit risk ("CCR") arising from securities financing transactions and derivative contracts booked in the banking book and trading book.

The Group has in place a set of policies and a comprehensive framework to effectively manage such counterparty credit risk.

Under this management framework, the Group establishes credit limit through formal credit approval procedures to control the pre-settlement and settlement credit risk arising from derivative transactions. In this connection, distinct credit limits for counterparty credit exposure for individual counterparties and each group of related counterparties are determined based on the credit standing of the counterparties, collateral value, contract nature, actual needs, etc.

From a risk management perspective, the Group monitors the risk exposure due to fluctuations in the market by using the current exposure and the potential exposure value of the transactions.

All credit facilities granted to a counterparty, including general credit facilities as well as pre-settlement Limit for derivative and FX products will be subject to review on an annual basis, in order to assess the latest information together with credit standing of the counterparties, and decide whether any adjustment of the credit package is required

At 31st December, 2017, no recognised credit derivative contract is applied as credit risk mitigation and no valid bilateral netting agreement is taken into account in the calculation of regulatory capital.

Wrong-way risk occurs when counterparty's risk exposures are adversely correlated with its credit quality. It is further classified into specific wrong-way risk and general wrong-way risk. The Group has set out in its internal policies a process for identification of wrong-way risk for individual counterparties.

To monitor and control wrong-way risk, any wrong-way risk will be identified and evaluated at the time of credit application, in which the analysis and mitigation measures are documented in the credit proposal for approver's consideration. The wrong-way risk will be monitored during the tenor of relevant transaction, and cases with wrong-way risk are reported. Besides, regular stress-testing is conducted to assess the potential impact of wrong-way risk on the Group's capital adequacy and profitability.

Credit ratings downgrade

A credit rating downgrade clause in International Swaps and Derivatives Association ("ISDA") Master Agreement or a credit rating downgrade threshold clause in a Credit Support Annexes ("CSA") is designed to trigger an action if the credit rating of the affected party falls below a specified level. These actions may include the requirement to pay or increase collateral, the termination of transactions by the non-affected party or the assignment of transactions by the affected party.

As at 31st December 2017, the potential value of the additional collateral pertaining to ISDA CSA downgrade thresholds that the Group would need to post with counterparties in the event of a one-notch downgrade of its rating was HK$0 and two-notch downgrade was HK$14.8 million.

Template CCR1: Analysis of counterparty default risk exposures (other than those to CCPs) by approaches

The following table presents a comprehensive breakdown of counterparty default risk exposures (other than those to CCPs), RWAs, and, where applicable, main parameters under the approaches used to calculate default risk exposures in respect of derivative contracts and SFTs as at 31st December 2017:

		(a)	(b)	(c)	(d)	(e)	(f)
		Replacement cost (RC) (HK$ Mn)	PFE (HK$ Mn)	Effective EPE (HK$ Mn)	Alpha (α) used for computing default risk exposure	Default risk exposure after CRM (HK$ Mn)	RWA (HK$ Mn)
1	SA-CCR (for derivative contracts)	0	0		1.4	0	0
1a	CEM	3,969	5,092		N/A	7,834	4,608
2	IMM (CCR) Approach			0	N/A	0	0
3	Simple Approach (for SFTs)					0	0
4	Comprehensive Approach (for SFTs)					8,370	139
5	VaR (for SFTs)					0	0
6	**Total**						**4,747**

Template CCR2: CVA capital charge

The following table presents information on portfolios subject to the CVA capital charge and the CVA calculations based on standardised CVA method and advanced CVA method as at 31st December 2017:

(HK$ million)		(a) EAD post CRM	(b) RWA
	Netting sets for which CVA capital charge is calculated by the advanced CVA method	0	0
1	(i) VaR (after application of multiplication factor if applicable)		0
2	(ii) Stressed VaR (after application of multiplication factor if applicable)		0
3	Netting sets for which CVA capital charge is calculated by the standardised CVA method	7,126	1,516
4	**Total**	**7,126**	**1,516**

Template CCR3: Counterparty default risk exposures (other than those to CCPs) by asset classes and by risk weights – for STC approach

The following table presents a breakdown of default risk exposures as at 31st December 2017, other than those to CCPs, in respect of derivative contracts and SFTs that are subject to the STC approach, by asset classes and risk-weights, irrespective of the approach used to determine the amount of default risk exposures:

	(HK$ million)	(a)	(b)	(c)	(ca)	(d)	(e)	(f)	(g)	(ga)	(h)	(i)
	Exposure Class \ Risk Weight	0%	10%	20%	35%	50%	75%	100%	150%	250%	Others	Total default risk exposure after CRM
1	Sovereign exposures	0	0	0	0	0	0	0	0	0	0	0
2	PSE exposures	0	0	0	0	0	0	0	0	0	0	0
2a	Of which: domestic PSEs	0	0	0	0	0	0	0	0	0	0	0
2b	Of which: foreign PSEs	0	0	0	0	0	0	0	0	0	0	0
3	Multilateral development bank exposures	0	0	0	0	0	0	0	0	0	0	0
4	Bank exposures	0	0	2	0	86	0	0	0	0	0	88
5	Securities firm exposures	0	0	0	0	4	0	0	0	0	0	4
6	Corporate exposures	0	0	0	0	0	0	270	0	0	0	270
7	CIS exposures	0	0	0	0	0	0	0	0	0	0	0
8	Regulatory retail exposures	0	0	0	0	0	21	0	0	0	0	21
9	Residential mortgage loans	0	0	0	0	0	0	0	0	0	0	0
10	Other exposures which are not past due exposures	0	0	0	0	0	0	119	0	0	0	119
11	Significant exposures to commercial entities	0	0	0	0	0	0	0	0	0	0	0
12	**Total**	**0**	**0**	**2**	**0**	**90**	**21**	**389**	**0**	**0**	**0**	**502**

Template CCR4: Counterparty default risk exposures (other than those to CCPs) by portfolio and PD range – for IRB approach

The Bank applies two internal rating models at the group level for risk-weighting its counterparty default risk portfolio, with the bank model applied to bank obligors and the corporate model applied to obligors which are non-bank financial institutions and corporates. For each of the regulatory portfolios disclosed in this template, 100% of the RWAs are covered by the internal rating models described.

The following table presents all the relevant parameters used for the calculation of counterparty default risk capital requirements for IRB exposures (other than those to CCPs) as at 31st December 2017:

		(a)	(b)	(c)	(d)	(e)	(f)	(g)
	PD Scale	EAD post-CRM (HK$ Mn)	Average PD	Number of obligors	Average LGD	Average maturity	RWA (HK$ Mn)	RWA density
Bank	0.00 to <0.15	11,777	0.09%	86	15.50%		1,342	11.40%
	0.15 to <0.25	891	0.21%	22	27.76%		335	37.53%
	0.25 to <0.50	727	0.35%	19	45.00%		559	76.95%
	0.50 to <0.75	196	0.51%	6	45.00%		179	91.21%
	0.75 to <2.50	893	0.97%	13	45.00%		1,031	115.52%
	2.50 to <10.00	0	2.83%	1	45.00%		0	154.81%
	10.00 to <100.00	0	-	0	-		0	-
	100.00 (Default)	0	-	0	-		0	-
	Sub-total	**14,484**	**0.17%**	**147**	**19.95%**		**3,446**	**23.79%**
Corporate	0.00 to <0.15	42	0.14%	3	41.58%		12	28.59%
	0.15 to <0.25	140	0.20%	7	40.50%		55	39.22%
	0.25 to <0.50	3	0.32%	8	1.10%		0	1.39%
	0.50 to <0.75	283	0.50%	12	40.46%		177	62.53%
	0.75 to <2.50	542	1.19%	85	33.72%		376	69.49%
	2.50 to <10.00	188	4.11%	54	35.77%		208	110.36%
	10.00 to <100.00	20	30.65%	5	20.40%		22	112.55%
	100.00 (Default)	0	-	0	-		0	-
	Sub-total	**1,218**	**1.81%**	**174**	**36.35%**		**850**	**69.83%**
Total (sum of all portfolios)		**15,702**	**0.30%**	**321**	**21.22%**		**4,296**	**27.36%**

Template CCR5: Composition of collateral for counterparty default risk exposures (including those for contracts or transactions cleared through CCPs)

The following table presents a breakdown of all types of collateral posted or recognised collateral received to support or reduce the exposures to counterparty default risk exposures as at 31st December 2017 in respect of derivative contracts or SFTs entered into, including contracts or transactions cleared through a CCP:

	(a)	(b)	(c)	(d)	(e)	(f)
	Derivative contracts				SFTs	
	Fair value of recognised collateral received		Fair value of posted collateral		Fair value of recognised collateral received	Fair value of posted collateral
(HK$ million)	Segregated	Unsegregated	Segregated	Unsegregated		
Cash – domestic currency	0	1,829	0	78	0	42
Cash – other currencies	0	83,220	0	1,785	2,998	4,974
Debt securities	0	0	0	0	4,560	3,354
Equity securities	0	295	0	0	30	0
Other collateral	0	0	0	0	0	0
Total	**0**	**85,344**	**0**	**1,863**	**7,588**	**8,370**

Template CCR6: Credit-related derivatives contracts

The following table presents the amount of credit-related derivative contracts as at 31st December 2017, broken down into credit protection bought and credit protection sold:

(HK$ million)	(a) Protection bought	(b) Protection sold
Notional amounts		
Credit default swaps	0	0
Total return swaps	0	0
Other credit-related derivative contracts	0	0
Total notional amounts	**0**	**0**
Fair values		
Positive fair value (asset)	0	0
Negative fair value (liability)	0	0

Table SECA: Qualitative disclosures related to securitization exposures

At the end of the reporting period, the Group only acted as an investor in all securitisation exposures. There were no securitisation exposures in trading book and re-securitisation exposures in both banking book and trading book as at 31st December 2017.

All securitisation exposures held by the Group are rated with investment grades and backed by non-granular pools.

The Group held relatively small amounts of securitisation exposures. They are classified and measured for accounting purpose in accordance with the Group's accounting policies on financial instruments.

Ratings from Moody's Investors Service and Standard & Poor's are adopted in assessing securitisation exposures. Since the securitization exposures held by the Group are all rated by recognised ECAI designated by the Capital Rules, the Ratings-based Method under the Internal Ratings-Based (Securitisation) Approach is used to calculate the risk-weighted amount for the exposures.

Template SEC1: Securitization exposures in banking book

The table below presents a breakdown of securitization exposures in the banking book as at 31st December 2017:

		(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)
		Acting as originator (excluding sponsor)			Acting as sponsor			Acting as investor		
(HK$ million)		Traditional	Synthetic	Sub-total	Traditional	Synthetic	Sub-total	Traditional	Synthetic	Sub-total
1	**Retail (total)** – of which:	-	-	-	-	-	-	559	-	-
2	residential mortgage	-	-	-	-	-	-	-	-	-
3	credit card	-	-	-	-	-	-	-	-	-
4	other retail exposures	-	-	-	-	-	-	559	-	-
5	re-securitization exposures	-	-	-	-	-	-	-	-	-
6	**Wholesale (total)** – of which:	-	-	-	-	-	-	-	-	-
7	loans to corporates	-	-	-	-	-	-	-	-	-
8	commercial mortgage	-	-	-	-	-	-	-	-	-
9	lease and receivables	-	-	-	-	-	-	-	-	-
10	other wholesale	-	-	-	-	-	-	-	-	-
11	re-securitization exposures	-	-	-	-	-	-	-	-	-

Template SEC3: Securitization exposures in banking book and associated capital requirements – where AI acts as originator

The following table presents securitization exposures in the banking book where the Bank Group acts as an originating institution of securitization transactions and the associated capital requirements as at 31st December 2017:

		(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)
		Exposure values (by RW bands)					Exposure values (by regulatory approach)				RWAs (by regulatory approach)				Capital charges after cap			
(HK$ million)		≤20% RW	>20% to 50% RW	>50% to 100% RW	>100% to <1250% RW	1250% RW	IRB(S) RBM	IRB(S) SFM	STC(S)	1250%	IRB(S) RBM	IRB(S) SFM	STC(S)	1250%	IRB(S) RBM	IRB(S) SFM	STC(S)	1250%
1	**Total exposures**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
2	Traditional securitization	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	Of which securitization	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	Of which retail	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	Of which wholesale	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	Of which re-securitization	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	Of which senior	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	Of which non-senior	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	Synthetic securitization	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	Of which securitization	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	Of which retail	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	Of which wholesale	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Of which re-securitization	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	Of which senior	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	Of which non-senior	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Template SEC4: Securitization exposures in banking book and associated capital requirements – where AI acts as investor

The following table presents securitization exposures in the banking book where the Bank Group acts as an investing institution of securitization transactions and the associated capital requirements as at 31st December 2017:

		(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)
		Exposure values (by RW bands)					Exposure values (by regulatory approach)				RWAs (by regulatory approach)				Capital charges after cap			
(HK$ million)		≤20% RW	>20% to 50% RW	>50% to 100% RW	>100% to <1250% RW	1250% RW	IRB(S) RBM	IRB(S) SFM	STC(S)	1250%	IRB(S) RBM	IRB(S) SFM	STC(S)	1250%	IRB(S) RBM	IRB(S) SFM	STC(S)	1250%
1	**Total exposures**	**559**	**0**	**0**	**0**	**0**	**559**	**0**	**0**	**0**	**49**	**0**	**0**	**0**	**4**	**0**	**0**	**0**
2	Traditional securitization	559	0	0	0	0	559	0	0	0	49	0	0	0	4	0	0	0
3	Of which securitization	559	0	0	0	0	559	0	0	0	49	0	0	0	4	0	0	0
4	Of which retail	559	0	0	0	0	559	0	0	0	49	0	0	0	4	0	0	0
5	Of which wholesale	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	Of which re-securitization	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	Of which senior	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	Of which non-senior	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	Synthetic securitization	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	Of which securitization	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	Of which retail	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	Of which wholesale	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Of which re-securitization	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	Of which senior	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	Of which non-senior	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table MRA: Qualitative disclosures related to market risk

The Group has established risk governance management framework to oversee and monitor market risk. This framework is built around a structure that enables the Board to discharge the responsibility for on-going market risk management to the Risk Committee ("RC"), the Risk Management Committee ("RMC") and the Asset and Liability Management Committee ("ALCO"). The ALCO deals with all market risk-related issues of the Group. It is also responsible for conducting a regular review of market risk trends and deciding the corresponding strategy.

Besides, the Group has implemented Enterprise Risk Management framework for identifying and managing potential risks of the Group. Under such framework, three lines of defence are adopted for market risk management. The first line of defence comprises risk owners at business units. They are primarily responsible for the day-to-day market risk management. The second line of defence refers to the risk controller of market risk, who is designated as the Head of Asset & Liability Management Department ("ALMD") and the third line of defence refers to the Internal Audit Division.

The Group Chief Risk Officer coordinates market risk management related matters of the Group, works closely with the Head of ALMD on the formulation of market risk management policies. Moreover, on a daily basis, the Group Chief Risk Officer is responsible for overseeing the Bank Group's risk management issues which include, but are not limited to, the risk management infrastructure, strategies, appetites, culture, and resources.

The Group has formulated market risk management policy to identify, measure, monitor, control, and report on the market risk, where appropriate, to allocate adequate capital to cover those risks. The market risk management policy and control limits are approved by the Board and are monitored and regularly reviewed to align with market changes, statutory requirements, and best practices in risk management processes.

Risk appetite has been defined in accordance with the Group's business strategies and objectives to govern the trading book activities. Hedging is allowed and monitored per market risk management framework.

For measuring and monitoring of market risk, market risk analysis is conducted on different dimensions, such as by risk factors, by regions, by currencies in the form of potential loss and impact to capital adequacy. Risk limits and management action triggers are set with reference to the nature, volume of transaction and risk appetite of the Bank. Multiple systems are employed to facilitate the calculation, measurement and analysis of market risk.

For reporting of market risk, risk reporting for trading book positions is compiled and monitored on a daily basis. Besides, risk reports are prepared for different level of governance on a regular basis.

Table MRB: Additional qualitative disclosures for AI using IMM approach

The calculation of market risk capital charge adopted by the Group is divided into two parts: market risk capital charge for general market risk and market risk capital charge for specific risk. The general market risk arising from the debt securities, interest rates, equities and FX trading activities in business units under scope of capital adequacy consolidation is covered by the VaR and stressed VaR models, while specific risk from debt securities and equities of trading book is separately captured in the market risk capital charge via standardised approach.

The Group estimates VaR and stressed VaR for the trading portfolio by the historical simulation approach, where the VaR and stressed VaR are calculated by revaluing the portfolio (through full revaluation approach) for each of the market movement scenarios obtained from the historical observation period.

This methodology uses movements in market rates and prices (to be updated on daily basis in the model) over a one-day holding period (for daily risk management purpose) or ten-day holding period from ten-day historical returns (for regulatory purpose) with a 99% confidence level. Two-year observation period is adopted for VaR, and one-year observation period of 2008 to 2009 financial tsunami historical scenario is adopted for stressed VaR.

Mixed approach is adopted for simulating potential movements in risk factors; where relative return is assumed for FX, equities and implied volatilities risk factors, and absolute return is assumed for interest rate risk factors.

In order to validate the accuracy and internal consistency of data and parameters used for the internal models and modelling processes, back-testing is conducted to compare daily actual / hypothetical profit & loss with VaR results on the trading portfolio.

Template MR1: Market risk under Standardised (market risk) approach (STM approach)

The table below provides the components of the market risk capital requirements calculated using the STM approach exposures as at 31st December 2017:

(HK$ million)	RWA
Outright product exposures	
Interest rate exposures (general and specific risk)	1,774
Equity exposures (general and specific risk)	5,008
Option exposures	-
Securitization exposures	-
Total	6,782

Template MR2: RWA flow statements of market risk exposures under IMM approach

The table below presents a flow statement explaining variations in the RWA for market risk determined under the IMM approach as at 31st December 2017 and 30th September 2017 respectively:

		(a)	(b)	(c)	(d)	(e)	(f)
(HK$ million)		VaR	Stressed VaR	IRC	CRC	Other	Total RWA
1	**RWA as at end of previous reporting period**	**5,224**	**14,193**	**0**	**0**	**0**	**19,417**
1a	Regulatory adjustment	3,685	9,764	0	0	0	13,449
1b	RWA as at day-end of previous reporting period	1,539	4,429	0	0	0	5,968
2	Movement in risk levels	232	1,615	0	0	0	1,847
3	Model updates/changes	0	0	0	0	0	0
4	Methodology and policy	0	0	0	0	0	0
5	Acquisitions and disposals	0	0	0	0	0	0
6	Foreign exchange movements	-8	3	0	0	0	-5
7	Other	-152	-371	0	0	0	-523
7a	RWA as at day-end of reporting period	1,611	5,676	0	0	0	7,287
7b	Regulatory adjustment	3,592	10,500	0	0	0	14,092
8	**RWA as at end of reporting period**	**5,203**	**16,176**	**0**	**0**	**0**	**21,379**

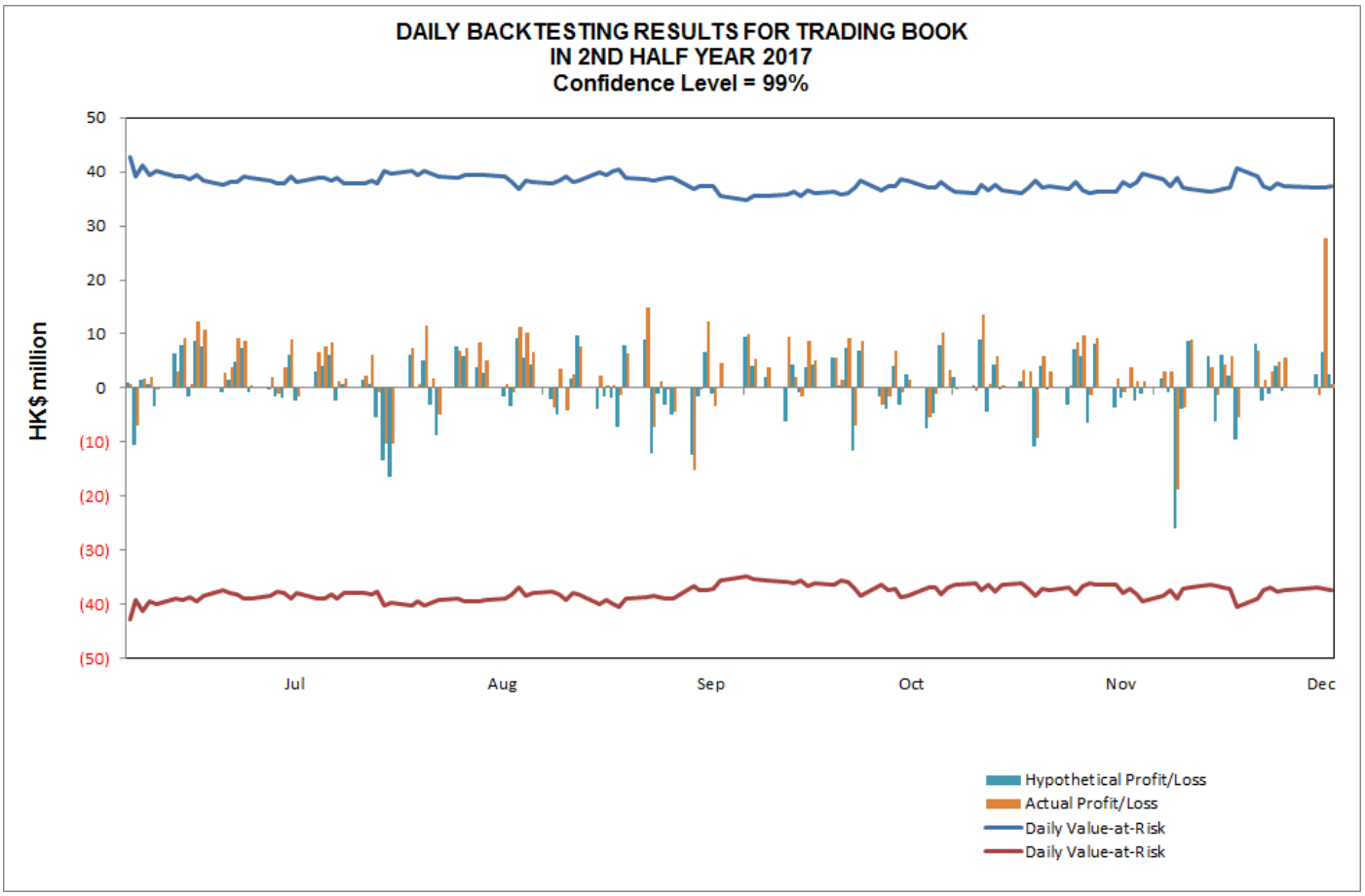
Template MR3: IMM approach values for market risk exposures

The table below discloses the values resulting from the different types of models used for computing the regulatory market risk capital requirement at the group-wide level, before any additional capital charge is applied:

		(a)
(HK$ million)		Value
VaR (10 days – one-tailed 99% confidence interval)		
1	Maximum Value	171
2	Average Value	139
3	Minimum Value	116
4	Period End	129
Stressed VaR (10 days – one-tailed 99% confidence interval)		
5	Maximum Value	551
6	Average Value	403
7	Minimum Value	328
8	Period End	454
Incremental risk charge (IRC) (99.9% confidence interval)		
9	Maximum Value	0
10	Average Value	0
11	Minimum Value	0
12	Period End	0
Comprehensive risk charge (CRC) (99.9% confidence interval)		
13	Maximum Value	0
14	Average Value	0
15	Minimum Value	0
16	Period End	0
17	Floor	0

Template MR4: Comparison of VaR estimates with gains or losses

The graph below presents a comparison of the results of estimates from the key VaR model for calculating market risk capital requirements with both hypothetical and actual trading outcomes:



Glossary

Abbreviations	Descriptions
CCF	Credit Conversion Factor
CCP	Central Counterparty
CCR	Counterparty Credit Risk
CEM	Current Exposure Method
CIS	Collective Investment Scheme
CRM	Credit Risk Mitigation
CVA	Credit Valuation Adjustment
EAD	Exposure At Default
EL	Expected Loss
EPE	Expected Positive Exposure
HVCRE	High-Volatility Commercial Real Estate
IMM	Internal Models Method
IRB	Internal Ratings-Based
IRB(S)	Internal Ratings-Based (Securitization)
LGD	Loss Given Default
PD	Probability Of Default
PFE	Potential Future Exposure
PSE	Public Sector Entity
RBM	Ratings-Based Method
RWA	Risk Weighted Asset
SA-CCR	Standardised Approach (Counterparty Credit Risk)
SFM	Supervisory Formula Method
SFT	Securities Financing Transaction
SRW	Specific Risk-Weight
STC	Standardized (Credit Risk)
STM	Standardized (Market Risk)
STO	Standardized (Operational Risk)
VaR	Value-At-Risk